



## Complete Summary

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### GUIDELINE TITLE

Selecting and using the most appropriate car safety seats for growing children: guidelines for counseling parents.

### BIBLIOGRAPHIC SOURCE(S)

American Academy of Pediatrics Committee on Injury and Poison Prevention. Selecting and using the most appropriate car safety seats for growing children: guidelines for counseling parents. Pediatrics 2002 Mar; 109(3):550-3. [23 references]

## COMPLETE SUMMARY CONTENT

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## SCOPE

### DISEASE/CONDITION(S)

Motor vehicle collision-related death and injury

### GUIDELINE CATEGORY

Counseling  
Prevention

### CLINICAL SPECIALTY

Family Practice  
Pediatrics

### INTENDED USERS

Advanced Practice Nurses  
Nurses

Physician Assistants  
Physicians

#### GUIDELINE OBJECTIVE(S)

To provide up-to-date, appropriate information for parents regarding their car safety seat choices and proper use

#### TARGET POPULATION

Children younger than 12 years of age who ride in motor vehicles

#### INTERVENTIONS AND PRACTICES CONSIDERED

Appropriate selection and proper use of car safety seats or child restraint devices for children

#### MAJOR OUTCOMES CONSIDERED

Not stated

### METHODOLOGY

#### METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

#### DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

#### NUMBER OF SOURCE DOCUMENTS

Not stated

#### METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

#### RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

#### METHODS USED TO ANALYZE THE EVIDENCE

Review

#### DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

#### METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

#### RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

#### COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

#### METHOD OF GUIDELINE VALIDATION

Peer Review

#### DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

### RECOMMENDATIONS

#### MAJOR RECOMMENDATIONS

##### Seat Selection

1. Children should face the rear of the vehicle until they are at least 1 year of age and weigh at least 20 lb to decrease the risk of cervical spine injury in the event of a crash. Infants who weigh 20 lb before 1 year of age should ride rear facing in a convertible seat or infant seat approved for higher weights until at least 1 year of age. (Weber, 2002; Weber, 1995) If a car safety seat accommodates children rear facing to higher weights, for optimal protection, the child should remain rear facing until reaching the maximum weight for the car safety seat, as long as the top of the head is below the top of the seat back. (Weber, 2002)
2. Premature and small infants should not be placed in car safety seats with shields, abdominal pads, or arm rests that could directly contact an infant's face and neck during an impact and injure the child. (Bull, Weber, & Stroup, 1988)
3. For optimal protection, pediatricians should counsel parents of most children (those who weigh more than 12 lb at 4 months of age) to encourage use of a convertible car safety seat that will accommodate them rear facing at higher weights.
4. A convertible car safety seat is positioned semi-reclined and rear facing for a child until at least 1 year of age and at least 20 lb. The seat is positioned upright and forward facing for an older and heavier child who weighs up to 40 lb and may be used as long as the child fits well (e.g., tops of ears below the

- top of the car safety seat back and shoulders below the seat strap slots). (Johnston, Rivara, & Soderberg, 1994)
5. A forward-facing seat, a combination seat, or a belt-positioning booster seat should be used when the child has outgrown a convertible safety seat but is too small to use the vehicle's safety belts. Vehicle safety belts should not be used until the shoulder belt can be positioned across the chest with the lap belt low and snug across the thighs; (Agran, Dunkle, & Winn, 1987; Winston et al., 2000) the child should fit against the vehicle's seat back with his or her feet hanging down when the legs are bent at the knees. A belt-positioning booster seat should be used until the vehicle safety belt fits well.
  6. Many new vehicles are equipped with integrated (built-in) car safety seats that are designed for forward-facing riders who are at least 1 year of age and weigh at least 20 lb. All younger infants should be positioned rear facing in separate car safety seats until they are at least 1 year of age and weigh at least 20 lb. When purchasing a new vehicle, parents should consider selecting a vehicle with an optional integrated car safety seat. Some integrated seats convert to booster seats for older children. (American Academy of Pediatrics [AAP], updated annually)
  7. On the basis of U.S. Federal Motor Vehicle Safety Standards established by the National Highway Traffic Safety Administration (NHTSA), shield boosters have not been certified by their manufacturers for use by children who weigh more than 40 lb. (Weber, 2002; Federal Motor Vehicle Safety Standards and Regulations, 1998) In current models, the shield can be removed and the restraint can be used with a lap and shoulder belt as a belt-positioning booster seat for children who are too heavy or tall to fit in a seat with a full harness.

Children who weigh 40 lb or less are best protected in a seat with a full harness (Weber, 2002; Marriner et al., 1995). Significant injuries to the head, spine, abdomen, and extremities of children in shield boosters have been documented in crash investigations resulting from ejection, excessive head excursion, and shield contact. (Marriner et al., 1995; Whitman et al., 1997; Stalnaker, 1997; Slavik, 1997) Although boosters with shields may meet current U.S. Federal Motor Vehicle Safety Standards for use by children who weigh 30 to 40 lb, on the basis of current published peer-reviewed literature, the American Academy of Pediatrics does not recommend their use.

8. A number of aftermarket add-on devices claim to solve the problem of poorly fitting seat belts; however, these products may actually interfere with proper lap and shoulder harness fit by positioning the lap belt too high on the abdomen and allowing too much slack in the shoulder harness, placing it too low across the shoulder. (Blue Ribbon Panel II, 2001) Until performance requirements are developed by the National Highway Traffic Safety Administration for aftermarket devices, these products should not be used.
9. Children with special health care needs should have access to appropriate restraint systems. (American Academy of Pediatrics, Committee on Injury and Poison Prevention, 1999) Specific information is available in the American Academy of Pediatrics (AAP) policy statement "[Transporting Children with Special Health Care Needs](#)" (American Academy of Pediatrics, Committee on Injury and Poison Prevention. Pediatrics 1999; 104: 988-92) and the publication titled "Safe Transportation of Children With Special Needs: A

Guide for Families" (Elk Grove Village [IL]: American Academy of Pediatrics; In press).

### Installation in Vehicle

1. A rear-facing car safety seat must not be placed in the front passenger seat of any vehicle equipped with an air bag on the front passenger side. Death or serious injury to an infant can occur from the impact of the air bag against the back of the car safety seat. (Weber, 2002; Center for Disease Control and Prevention [CDC], 1993)
2. Parents should be advised that the rear vehicle seat is the safest place for children of any age to ride. Any front-seat, front-facing passengers should ride properly restrained and positioned as far back as possible from the front air bag on the passenger side. (Center for Disease Control and Prevention [CDC], 1993)
3. Parents should be instructed to read the vehicle owner's manual and child restraint device instructions carefully. When the car safety seat is installed in the car, it should be tested for a safe, snug fit in the vehicle to avoid potentially life-threatening incompatibility problems between the design of the car safety seat, vehicle seat, and seat belt system.

Lower Anchors and Tethers for Children (LATCH) is a new standardized car safety seat attachment system that will simplify car safety seat installation and enhance safety. Most new vehicles and car safety seats will be equipped with this system by September 2002.

4. Infants should ride at approximately a 45 degree angle to prevent slumping and airway obstruction. If the vehicle seat slopes so that the infant's head flops forward, the car safety seat should be positioned back at an approximately 45 degree tilt according to the manufacturer's instructions. Some car safety seats have built-in features that allow adjustment of the angle. For car safety seats that do not adjust, a firm roll of cloth, a solid-core Styrofoam roll, or a tightly-rolled newspaper can be wedged under the car safety seat below the infant's feet to achieve this angle. (American Academy of Pediatrics, Committee on Injury and Poison Prevention and Committee on Fetus and Newborn, 1996)
5. Experience with the interaction of vehicle side air bags and car safety seats is limited. To date, no crash studies have established that a child properly restrained in a car safety seat is at risk from current side air bag impact. (Weber, 2002) Laboratory simulations have indicated, however, that unrestrained and out-of-position children are at risk of serious injury from a deploying side air bag. (Duma et al., 1998) Because children cannot be depended on to remain in position at all times and until additional research and experience is acquired, parents should be counseled about the potential risks and benefits of having side air bags. Parents should consider placing children and car safety seats away from all air bags, choosing a vehicle without side air bags in the rear seat, or deactivating side air bags in rear seats if children are transported in adjacent positions. They may also refer to the vehicle owner's manual for recommendations specific to their vehicle.

### Placement of Child in Seat

1. In rear-facing car safety seats for infants, shoulder harnesses usually should be placed in the slots at or below the infant's shoulders, the harness should be snug, and the car safety seat's retainer clip should be positioned at the level of the infant's armpit, not on the abdomen or in the neck area (see manufacturers' instructions for details).
2. In forward-facing car safety seats for older children, the shoulder strap should be at or above the child's shoulders, the harness should be snug, and the retainer clip should be positioned level with the child's armpits. This seat should be used until the child reaches the top weight limit of the seat or the tops of his or her ears reach the top of the car safety seat back (see manufacturers' instructions for details).
3. A child should never be left unattended in a car safety seat in or out of the car.

#### CLINICAL ALGORITHM(S)

None provided

### EVIDENCE SUPPORTING THE RECOMMENDATIONS

#### REFERENCES SUPPORTING THE RECOMMENDATIONS

[References open in a new window](#)

#### TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is not specifically stated for each recommendation.

### BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

#### POTENTIAL BENEFITS

- Provision of appropriate information to parents regarding car safety seat choices and proper use
- Appropriate choice and proper use of car safety seats to prevent death and injury to children riding in motor vehicles

#### POTENTIAL HARMS

Not stated

### QUALIFYING STATEMENTS

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The recommendations in this statement do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

## INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

### IOM CARE NEED

Staying Healthy

### IOM DOMAIN

Effectiveness  
Patient-centeredness  
Safety

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

American Academy of Pediatrics Committee on Injury and Poison Prevention. Selecting and using the most appropriate car safety seats for growing children: guidelines for counseling parents. Pediatrics 2002 Mar; 109(3):550-3. [23 references]

### ADAPTATION

Not applicable: The guideline was not adapted from another source.

### DATE RELEASED

1996 May (revised 2002 Mar)

### GUIDELINE DEVELOPER(S)

American Academy of Pediatrics - Medical Specialty Society

### SOURCE(S) OF FUNDING

American Academy of Pediatrics

### GUIDELINE COMMITTEE

Committee on Injury and Poison Prevention

## COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Committee on Injury and Poison Prevention (2001-2002): Marilyn J. Bull, MD, Chairperson; Phyllis Agran, MD, MPH; Victor Garcia, MD; H. Garry Gardner, MD; Danielle Laraque, MD; Susan H. Pollack, MD; Gary A. Smith, MD, DrPH; Milton Tenenbein, MD; Joseph Wright, MD, MPH

Liaison Representatives: Ruth A. Brenner, MD, MPH, National Institute of Child Health and Human Development; Stephanie Bryn, MPH, Health Resources and Service Administration/Maternal and Child Health Bureau; Richard A. Schieber, MD, MPH, Centers for Disease Control and Prevention; Alexander Sinclair, National Highway Traffic Safety Administration; Deborah Tinsworth, U.S. Consumer Product Safety Commission; Lynn Warda, MD, Canadian Paediatric Society

Consultant: Murray L. Katcher, MD, PhD

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## FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

## GUIDELINE STATUS

This is the current release of the guideline. This guideline updates a previously released version (Selecting and using the most appropriate car safety seats for growing children: guidelines for counseling parents. Pediatrics 1996 May; 97[5]: 761-3).

AAP Policies are reviewed every 3 years by the authoring body, at which time a recommendation is made that the policy be retired, revised, or reaffirmed without change. Until the Board of Directors approves a revision or reaffirmation, or retires a statement, the current policy remains in effect.

## GUIDELINE AVAILABILITY

Electronic copies: Available from the [American Academy of Pediatrics \(AAP\) Policy Web site](#).

Print copies: Available from AAP, 141 Northwest Point Blvd., P.O. Box 927, Elk Grove Village, IL 60009-0927.

## AVAILABILITY OF COMPANION DOCUMENTS

The following related American Academy of Pediatrics (AAP) policy statements are available:

- American Academy of Pediatrics, Committee on Injury and Poison Prevention. Safe transportation of newborns at hospital discharge. Pediatrics 1999; 104: 986-7. Electronic copies available from the [American Academy of Pediatrics \(AAP\) Policy Web site](#)



- American Academy of Pediatrics, Committee on Injury and Poison Prevention. Transporting children with special health care needs. Pediatrics 1999;104:988-2. Available from the [AAP Policy Web site](#)
- American Academy of Pediatrics, Committee on Injury and Poison Prevention and Committee on Fetus and Newborn. Safe transportation of premature and low birth weight infants. Pediatrics 1996;97:758-60. Available in Portable Document Format (PDF) from the [AAP Policy Web site](#)

Print copies: Available from AAP, PO Box 747, Elk Grove Village, IL 60009-0747.

## PATIENT RESOURCES

The following are available:

1. Car safety seats: A guide for families. Elk Grove (IL): American Academy of Pediatrics, 2002. Available from the [American Academy of Pediatrics \(AAP\) Web site](#)
2. 2001 Family shopping guide to car seats. Patient education brochure. Elk Grove (IL): American Academy of Pediatrics, 2001.
3. Car seat shopping guide for children with special needs. Patient education brochure. Elk Grove (IL): American Academy of Pediatrics, 2001.
4. One-minute car seat safety check-up. Checklist. Elk Grove (IL): American Academy of Pediatrics, 2001.
5. Safe transportation of children with special needs: A guide for families. Elk Grove (IL): American Academy of Pediatrics, 2002.
6. Child passenger safety. Protecting children and reducing liability in child care. Patient education brochure. Elk Grove (IL): American Academy of Pediatrics, 2001.

Print copies: Available from the American Academy of Pediatrics, PO Box 747, Elk Grove Village, IL 60009-0747.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

## NGC STATUS

This summary was completed by ECRI on April 27, 1999. The information was verified by the guideline developer on July 13, 1999. This summary was updated by ECRI on May 7, 2002. The information was verified by the guideline developer on June 11, 2002.

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